

What is claimed is:

1. A method for fabricating a polymeric optic waveguide grating, the method comprising:

5 forming a core layer of a polymeric material on a substrate;
 irradiating an ultraviolet ray to the core layer to pre-cure a surface of the core layer;

 pressing the pre-cured core layer at a predetermined pressure by using a master having a grating pattern;

10 irradiating the ultraviolet ray in a state that the master is pressed, to fully cure the core layer; and

 separating the master from the fully cured core layer to form a grating pattern on the core layer.

15 2. The method of claim 1, wherein the master comprises a grating pattern region for transmitting the ultraviolet ray and both side bar regions for screening the ultraviolet ray to form the grating pattern and a single mode optic waveguide.

20 3. The method of claim 1, wherein the master comprises a grating pattern region and both side bar regions for transmitting the ultraviolet ray to form the grating pattern and a rib type optic waveguide.

4. The method of claim 1, wherein the master is formed of quartz.

5. The method of claim 1, wherein the core layer is formed of a polymeric material comprised of a monomer and an initiator.

6. The method of claim 1, wherein each of the steps is performed in a room temperature.

7. A method for fabricating a polymeric optic waveguide grating, the method comprising the step of performing an imprint lithography process using a master having a grating pattern for a polymeric film formed on a substrate, to form a grating on the polymeric film.

8. The method of claim 7, wherein the master comprises a grating pattern region for transmitting the ultraviolet ray and both side bar regions for screening the ultraviolet ray to form the grating pattern and a single mode optic waveguide.

9. The method of claim 7, wherein the master comprises a grating pattern region and both side bar regions for transmitting the ultraviolet ray to form the grating pattern and a rib type optic waveguide.

10. The method of claim 7, wherein the master is formed of quartz.

11. The method of claim 7, wherein the polymeric film is
5 comprised of a monomer and an initiator.

12. The fabrication method of claim 7, wherein the process is performed in a room temperature.

10 13. A polymeric optic device having a grating, which is formed by a method for fabricating a polymeric optic waveguide grating, the method comprising the steps of: forming a core layer of a polymeric material on a substrate; irradiating an ultraviolet ray to the core layer to pre-cure a surface of the
15 core layer; pressing the pre-cured core layer at a predetermined pressure by using a master having a grating pattern; irradiating the ultraviolet ray in a state that the master is pressed, to fully cure the core layer; and separating the master from the fully cured core layer to form a grating pattern on the core
20 layer.

14. The polymeric optic device of claim 13, wherein the master comprises a grating pattern region for transmitting the ultraviolet ray and both side bar regions for screening the

ultraviolet ray to form the grating pattern and a single mode optic waveguide.

15. The polymeric optic device of claim 13, wherein the
5 master comprises a grating pattern region and both side bar regions for transmitting the ultraviolet ray to form the grating pattern and a rib type optic waveguide.

16. The polymeric optic device of claim 13, wherein the
10 master is formed of quartz.

17. The polymeric optic device of claim 13, wherein the core layer is formed of a polymeric material comprised of a monomer and an initiator.

15